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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,763	02/13/2004	Anthony J. Magrath	M0025.0305/P305	5334

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EXAMINER

WAMSLEY, PATRICK G

ART UNIT	PAPER NUMBER
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2819

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/777,763

Applicant(s)

MAGRATH, ANTHONY J.

Examiner

Patrick G. Wamsley

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-7, 9, 10, 17-20, 22, 23 and 29-31 is/are rejected.
- 7) ☐ Claim(s) 4, 8, 11-16, 21 and 24-28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08/11/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-31 have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-7, 9-10, 17-20, 22-23, and 29-31 are rejected under 35 U.S.C.

103(a) as being unpatentable over the Admitted Prior Art, hereafter APA, in view of U.S. Patent 5,089,818 to Mahieux et al, hereafter Mahieux.

APA discloses a word length reduction circuit, hereafter WLR [Page 5, line 1], for quantizing a multibit input signal into a multibit output signal, comprising an input for receiving input signals and a quantizer [both functions are performed by element 7]. APA's noise shaper circuit [Page 4, last two lines] is used in digital audio amplifiers [Page 1, ¶2, first two lines]

Unlike claims 1, 18 and 31, APA lacks feedback loops. In contrast, Mahieux discloses a sound signal coding method involving both inner and outer feedback loops, as shown in Fig. 2A. At the time of the invention, it would have been obvious to one of ordinary skill in the art to have applied Mahieux's feedback teachings to APA's WLR circuit. The motivation would have been to reduce the bit rate [col. 1, line 62].

For claims 2 and 19, APA discloses a cascaded integrator [Page 5, ¶3, line 2].

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For claims 3 and 20, APA discloses sigma-delta modulation [Page 5, ¶3, line 1].

For claim 5, Mahieux uses an adder [shown in Fig. 2A] to couple a feedback loop including a loop filter [46] to the input signal [36].

For claim 6, Mahieux uses a second adder [44] for the inner feedback loop.

For claim 7, in order to decode harmonics [col. 4, line 61]. Mahieux must use shifters to properly process multiples of signals in a binary format.

For claims 9 and 22, APA converts PCM signals into the PWM format [Page 1, ¶1, lines 9-11].

For claims 10 and 23, APA discloses a linearizer [6].

For claim 17, APA provides a WLR circuit [Page 5, line 1].

For claim 29, APA discloses a digital amplifier [Page 1, ¶1, line 1].

For claim 30, APA discloses a carrier medium [Page 1, ¶1, lines 6-8].

Allowable Subject Matter

Claim 4, 8, 11-16, 21, and 24-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


The following is a statement of reasons for the indication of allowable subject matter: the references of record neither reveal nor render obvious the recited combination including the use of least significant bits [LSBs] in a feedback loop [claims 4 and 21], the use of limiters to modify scaling factors [claim 8]; the use of estimation algorithms [claims 11-16 and 24-28].

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5,115,241 to Ishikawa uses outer [32] and inner [40] feedback loops with a quantizer [34]. U.S. Patent 5,070,515 discloses outer [12] and inner [13] feedback loops with a predictive filter [11] for a quantizer [14].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick G. Wamsley whose telephone number is (571) 272-1814. The official facsimile number is (571) 273-8300. An alternate facsimile number, (571) 273-1814, should only be used for unofficial documents.


Patrick G. Wamsley

September 26, 2005